

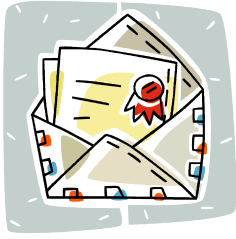


# Volcano Unit

## Instructional Modifications

Focusing on 6<sup>th</sup> Grade Science Standards and Benchmarks

Sally Fennema-Jansen  
Kenosha Unified School District No. 1  
April, 2003



# Message to the Reader

Dear Reader,

I am taking a class at the University of Wisconsin – Milwaukee on Technology and Instruction for Students with Disabilities. As a part of that class, I developed this instructional modification guide for a unit on volcanoes. Although it is designed for teachers of students at the sixth grade level, many of the resources would be appropriate for students in fifth through eighth grade.

Technology can be an effective tool to motivate students, enhance learning, and address the individual needs of students in your classroom. As the teacher, you know what works best for your students; so, investigate the options presented, then pick and choose as you differentiate to meet your students' needs!

With regard to modifications, the tools that are described in this guide are just the tip of the iceberg! There are many more options available, but, because of limited space, I selected those that I thought would be most helpful to you.

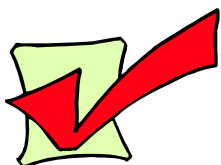
For further information, feel free to send me an e-mail.

Enjoy!

Sally Fennema-Jansen  
sfennema@kUSD.edu.



Products used in creating this guide include Clipart from Microsoft Word and photos from <http://www.volcanolive.com/contents.html>.



## Standards and

# Benchmarks

## **Kenosha Unified School District No. 1 Sixth Grade Science Standards and Benchmarks addressed in this unit:**

### **Science Standard: 1. Understands basic features and structure of the Earth Benchmarks:**

- Knows the structure of Earth (e.g. layered, a thin crust, hot convecting mantle, dense metallic core; three-fourths of the Earth's surface is covered by a thin layer of water and the entire planet is surrounded by a blanket of air) (Volcano Chapter)
- Understands why the Earth's climate changes (e.g., the effects of geological shift, volcanic activity, advance or retreat of glaciers, changes of atmospheric content or ocean temperature)

### **Standard: 2. Understands basic Earth processes Benchmarks:**

- Understands that rocks are composed of minerals and show evidence of temperatures and forces that formed them
- Knows processes involved in the rock cycle (e.g., old rocks at the surface gradually weather and form sediments that are buried, then compacted, heated, and often recrystallized into new rock; new rock is eventually brought to the surface by the forces that drive plate motions, and the rock cycle continues)
- Understands how landforms are created through a combination of forces



## **R e s o u r c e s**

**The Kenosha Unified School District No. 1 Standards and Benchmarks, are available at the following website:**

**[http://www.kusd.edu/lessons/sb/sb\\_toc.htm](http://www.kusd.edu/lessons/sb/sb_toc.htm)**

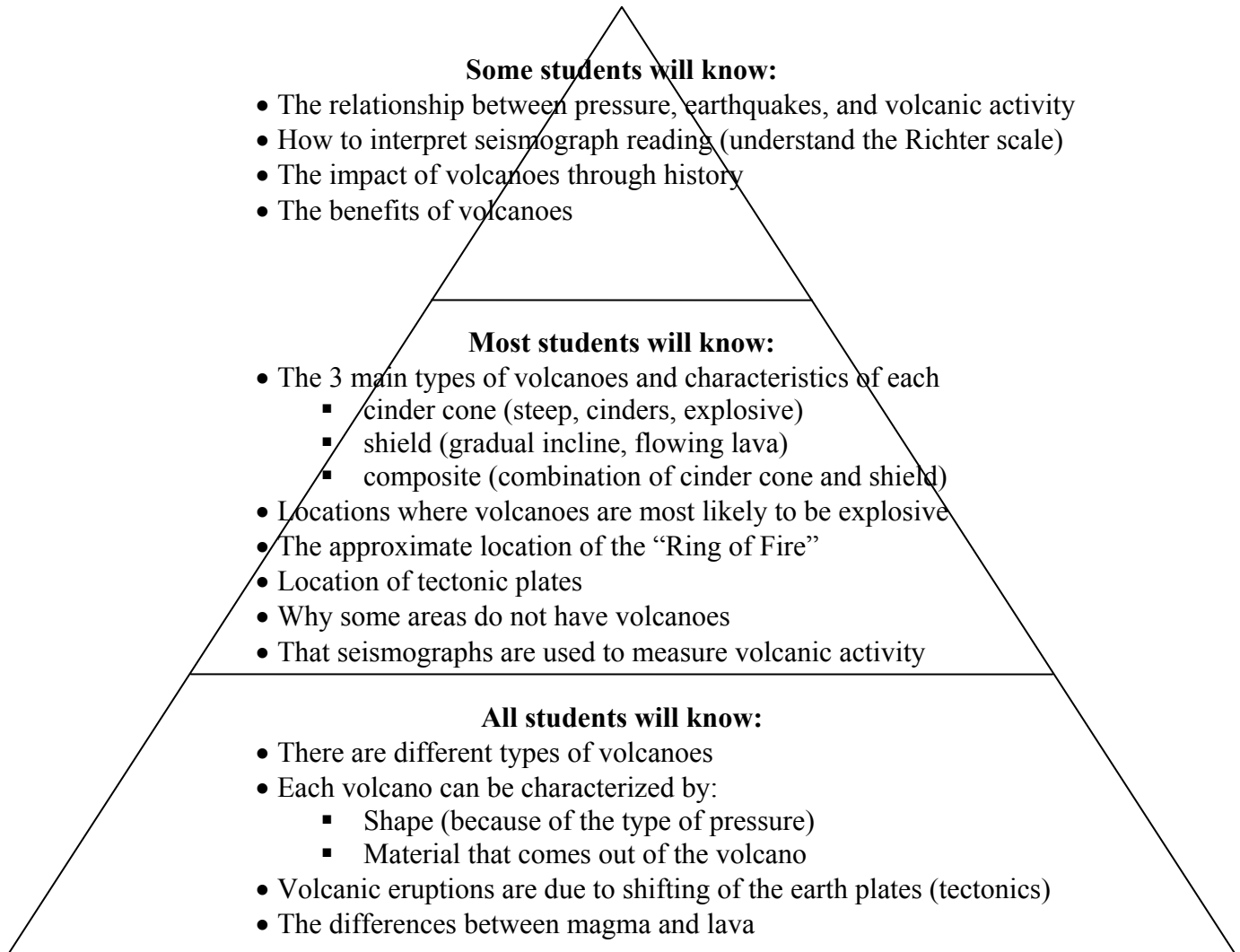
**For further information on using standards, or to locate state and national standards, check out the following websites:**

**Developing Educational Standards  
<http://www.edStandard.org/Standards.html>**

**McREL  
<http://www.mcrel.org/standards/>**



The content area and special education teachers need to agree on the information that is important for students to learn in a unit. By collaboratively developing a planning pyramid, the teachers have a foundation on which to develop modifications and accommodations, as well as for assessment criteria. Here is one suggestion, possibly a starting point, for the use of the planning pyramid for the volcano unit.




For further information on the use of the planning pyramid, please refer to the following article:

Schumm, J. S., Vaughn, S., & Harris, J. (1997).  
Pyramid power for collaborative planning.  
*Teaching Exceptional Children*, 29(6), 62-66.



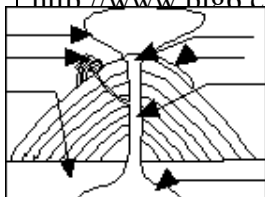
<b>Understanding: Volcanoes</b> Students make models of 3 types of volcanoes. <a href="http://school.discovery.com/lessonplans/programs/understanding-volcanoes/">http://school.discovery.com/lessonplans/programs/understanding-volcanoes/</a>	<b>Volcano!</b> Students prepare a report for the president about expectations and the steps necessary to prepare people to cope during a volcanic eruption. <a href="http://school.discovery.com/lessonplans/programs/volcano">http://school.discovery.com/lessonplans/programs/volcano</a>
The above lesson plans include extension ideas, discussion questions, evaluation, suggested readings and links. The vocabulary definitions are read aloud!	
<b>Exploring the Environment</b> The four volcano modules are problem-based learning. Designed for students in grades 7-12, so may need to adapt these for younger students. <a href="http://davem2.cotf.edu/ete/teacher/tmodules/tvolcanoes.html">http://davem2.cotf.edu/ete/teacher/tmodules/tvolcanoes.html</a>	<b>Blue Web 'N</b> A searchable library of "outstanding" Internet learning sites. <a href="http://www.kn.pacbell.com/wired/bluewebn/search.html">http://www.kn.pacbell.com/wired/bluewebn/search.html</a>
<b>Lesson Plans Galore</b> Links to many, many sites with lesson plan ideas. <a href="http://www.gradebook.org/lesson.html">http://www.gradebook.org/lesson.html</a>	<b>Georgia Learning Connection</b> Searchable database of lesson plans and web sites. The lesson plans provide links to a list of accommodations for students with disabilities. <a href="http://www.glc.k12.ga.us/">http://www.glc.k12.ga.us/</a>

### Internet Resources

<b>Volcano Live</b> Commercial site with lots of photos. <a href="http://www.volcanolive.com/contents.html">http://www.volcanolive.com/contents.html</a>	<b>Volcano: Web Information Sources for Educators. An Exploratorium Learning Studio Resource Guide</b> A terrific list of Web resources for teachers. <a href="http://www.exploratorium.edu/ls/infosources/VolcanoInfo.html">http://www.exploratorium.edu/ls/infosources/VolcanoInfo.html</a>
	<b>Volcano World</b> Great website with lots of helpful information. <a href="http://volcano.und.nodak.edu/">http://volcano.und.nodak.edu/</a>


### Supporting Student Research

<b>Big 6™</b> Provides a wealth of information about teaching the following 6 research skills to students: <ol style="list-style-type: none"> <li>1. Task definition</li> <li>2. Information seeking skills</li> <li>3. Location and access</li> <li>4. Use of information</li> <li>5. Synthesis</li> <li>6. Evaluation</li> </ol> <a href="http://www.big6.com/">http://www.big6.com/</a>	<b>Resources for Each Big 6™ Step</b> <a href="http://nd.wsd.wednet.edu/big6/big6_resources.htm">http://nd.wsd.wednet.edu/big6/big6_resources.htm</a>  <b>Wallet-Size Card</b> A wallet-size card is available at <a href="http://www.big6.com/showarticle.php?id=89">http://www.big6.com/showarticle.php?id=89</a>
---	--



# Learner Activities

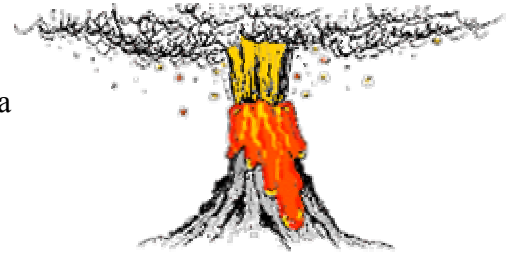


<p><b>Mountain Maker, Earth Shaker</b> A plate tectonics activity that allows you to manipulate plates and observe the effect on the earth. <a href="http://www.pbs.org/wgbh/aso/tryit/tectonics/#">http://www.pbs.org/wgbh/aso/tryit/tectonics/#</a></p>	<p><b>Quia Games</b> Includes a matching game, flashcards, concentration, and a word search related to volcanoes. <a href="http://www.quia.com/custom/514main.html">http://www.quia.com/custom/514main.html</a></p>
<p><b>BrainPOP Quizzes and Videos</b> Short videos available on Plate Tectonics, Volcanoes, and related topics. <a href="http://brainpop.com/science/earth">http://brainpop.com/science/earth</a></p>	<p><b>Whatever Happened to Pompeii?</b> A Filamentality site designed to provide students with an Internet treasure hunt. <a href="http://www.kn.pacbell.com/wired/fil/pages/huntbuildmos.html">http://www.kn.pacbell.com/wired/fil/pages/huntbuildmos.html</a></p>
<p><b>Musical Plates</b> Students use Real-Time earthquake and volcano data from the Internet to explore the relationship between earthquakes, plate tectonics, and volcanoes. <a href="http://nynie.dl.stevens-tech.edu/curriculum/musicalplates2/index.shtml">http://nynie.dl.stevens-tech.edu/curriculum/musicalplates2/index.shtml</a></p>	
<p><b>Enchanted Learning</b> This site has activities, animations, and a dictionary of vocabulary related to volcanoes!</p> <p><b>Enchanted Learning: All About Plate Tectonics</b> <a href="http://www.enchantedlearning.com/subjects/astronomy/planets/earth/Continents.shtml">http://www.enchantedlearning.com/subjects/astronomy/planets/earth/Continents.shtml</a></p> <p><b>Enchanted Learning: Volcano</b> <a href="http://www.enchantedlearning.com/subjects/volcano/">http://www.enchantedlearning.com/subjects/volcano/</a></p>	<p><b>TrackStar</b> Create your own web-based lessons or search for those have been designed by other teachers. A search for tracks related to volcanoes for middle school students returned 185 tracks! <a href="http://trackstar.hprtec.org/">http://trackstar.hprtec.org/</a></p>
<p><b>Project Poster</b> A tool designed to help students create a web-based project poster. <a href="http://poster.hprtec.org/">http://poster.hprtec.org/</a></p>	<p><b>Kids's Search Tools</b> <a href="http://www.rcls.org/ksearch.html">http://www.rcls.org/ksearch.html</a></p> <p><b>Big 6™ for Kids</b> <a href="http://www.big6.com/kids/3-6.html">http://www.big6.com/kids/3-6.html</a></p>



There are a variety of ways that you could assess the students on the material in this unit. Some of the suggestions below involve a learning activity that culminates in a product that can be used to assess learning. For students with disabilities, it will be important to be aware of each student's individual learning needs and testing accommodations as identified in the Individualized Education Plan. Also, refer back to the "Planning Pyramid" as a guide for grading.

- Have students choose a product to demonstrate that they understand the important concepts in this unit. They could compose a song, rap, or poem, design a poster or a brochure.
- Create a **ThinkQuest** Activity  
Search earth science to find ThinkQuest activities designed by students related to volcanoes and plate tectonics.  
[www.thinkquest.org/library/](http://www.thinkquest.org/library/)
- **WebQuest: When Disaster Strikes!**  
The team's task is to make a public service announcement letting people know how to survive a disaster.  
<http://geocities.com/le6th/psaproject>
- **WebQuest: Earthquakes vs. Volcanoes**  
<http://www.stcharles.k12.la.us/martin/earthquake.htm>  
Teams research and debate whether they would rather live near an earthquake fault or a volcano. Students finish the quest by writing an e-mail to a geologist.
- For help in designing your own **WebQuest** activities, check out the resources at <http://webquest.sdsu.edu/materials.html>.
- Use a project-based approach to learning and assessment. Check out the **project-based learning checklist** development site at <http://www.4teachers.org/projectbased/checklist.shtml>.
- Visit **Kathy Schrock's Guide for Educators** site for a variety of assessment and rubric information at <http://school.discovery.com/schrockguide/assess.html>.
- Web for Teachers provides a variety of free tools that can assist in the assessment process include **QuizStar** (for developing online quizzes), **RubiStar** (for designing rubrics), and a **Web Worksheet Wizard** (for designing web-based activities). Check out these and other tools at <http://www.4teachers.org/>.





# Modifications: Planning for Academic Diversity

## For Students Who Struggle with Reading

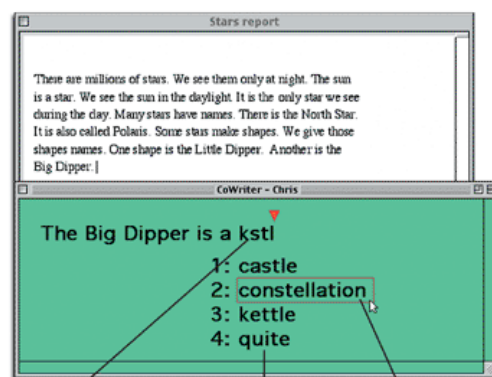
There are many ways to meet the needs of students with who are unable to read at grade level, some that use technology and others that don't. I have included just a few here:

<b>ReadPlease 2002</b> (Windows): A text-to-speech application that can be used to read web pages. Will speak any text copied to the clipboard. Freeware! <a href="http://www.readplease.com">http://www.readplease.com</a>	<b>HearIt 1.0 d3</b> (Mac): Uses MacIntalk or PlainTalk voices to read highlighted text in almost any application. Freeware! <a href="http://trace.wisc.edu/work/computer_access/mac/macshare.html">http://trace.wisc.edu/work/computer_access/mac/macshare.html</a>
<b>Start-to-Finish Book: Liddy and the Volcano:</b> By Godwin Chu. A high-interest, controlled-vocabulary series that includes a paperback, audiotope, and computer-based book. <a href="http://www.donjohnston.com">http://www.donjohnston.com</a>	Consider altering the cognitive difficulty of text. Review the article " <b>Cognitive Rescaling Strategies: Interventions That Alter the Cognitive Accessibility of Text</b> " by Dave Edyburn in the April/May, 2002 issue of <i>Closing The Gap</i> .

## For Students Who Struggle with Written Language

Again, this is just a sample of the many options available.

- **Inspiration:** Software that integrates diagramming and outlining into a powerful program. Can be used to support organizing ideas for writing as well as reading comprehension. <http://www.inspiration.com>
- **Co:Writer 4000:** A word prediction program that can be used to support spelling and vocabulary. There is a topic dictionary on volcanoes available for download. <http://www.donjohnston.com/catalog/writecover/writecoverfrm.htm>
- **Draft:Builder:** An organizer to support students through the writing process. A variety of templates are available for download from the company's website.  
<http://www.donjohnston.com/catalog/writecover/writecoverfrm.htm>



Co:Writer 4000 works on top of any word processor or program that accepts text.

As students type, Co:Writer 4000 predicts words for the sentence, even if they use phonetic spelling.

Predicted words are read aloud to help students reveal their word options.

## Resources

There are a number of websites that can assist you in developing modifications and accommodations for your students. Check out the following:

<b>► Georgia Learning Connection:</b> Search for a lesson plan, then scroll to the bottom and select the type of modification for which you are looking <a href="http://www.glc.k12.ga.us/">http://www.glc.k12.ga.us/</a> <b>► Making Modifications in the Classroom: A Collection of Checklists</b> <a href="http://www.ldonline.org/ld_indepth/teaching_techniques/mod_checklists.html">http://www.ldonline.org/ld_indepth/teaching_techniques/mod_checklists.html</a>	<b>► Integration Resource Guide:</b> by Dave Edyburn in the January/February, 2002 Issue of <i>Special Education Technology Practice</i> 4(1), 20-26. <b>► National Center on Educational Outcomes:</b> This site has a wealth of information on standardized testing and accommodations for students with disabilities. Not as helpful for developing modifications for individual assignments. <a href="http://education.umn.edu/NCEO/">http://education.umn.edu/NCEO/</a>
---	---